GEOGRAPHY EDUCATORS' NETWORK OF INDIANA

NEWSLETTER

Volume 106, Issue 4 Fall, 2006

Inside this issue:

The Children's Museum of Indianapolis Hosted Summer Institute for Exhibit Opening This Fall

In July, GENI assisted the *Children's Museum of Indianapolis* with the implementation of an educators' summer institute, which focused on *MAPS: Tools for Adventure*. The institute involved eighteen very energetic, interesting, and eager educators from all grade levels. Each educator brought forth a variety of proven ideas and experiences to share, as well as brought a vitality that enhanced the professional development experience for all! What a great group!

During the week, participants learned about the history of cartography (map making) while actually viewing many historic maps from the exhibit resources, such as Zing Ho's map of Chinese oceanic trade. The participants also learned about map distortion and map projections, which change as understanding of the Earth changes. Participation in a variety of classroom appropriate activities enabled the educators to garner new ideas, to enhance existing ideas, and to brainstorm more ideas. Classroom activities highlighted mapping skills and concepts, geospatial technology applications in mapping, literature connections, and relationships to the *MAPS: Tools for Adventure* exhibit.

Field experiences included a trip to the George F. CRAM Company, Inc. to learn about, and to watch the process of making globes and maps. Another field

Continued on page 3

VolunTourism?

Ever feel like your vacations are missing something? Wish you could come home from a destination and feel like you got the well needed rest you deserve AND that you accomplished something while soaking up that R & R? Then you need to research the latest trend in travel: Voluntourism!

"Volun-what" you say? According to *VolunTourism.org* it is "the integrated combination of voluntary service to a destination with the traditional elements of travel and tourism—arts, culture, geography, history, and recreation—while in the destination." This type of travel offers a solution to the question "How can I give back to a place that has given me so much—so many fond memories, great food, fabulous gifts, adventure beyond imagination, exquisite accommodations, etc.?"

Indiana is fortunate to have an organization that focuses on VolunTourism to

Continued on page 4

Special Points of Interest:

- GeoFest 2006 at Clifty Falls State Park
- Geographic Bee Registration Deadline Oct. 15!
- New HS Course Workshop in November
- Major change in ICSS Annual Conference date

Calendar of Events

- June-Sept.—Free 1 to 4-day **Workshops on the Mississippi River** aboard the Living Lands & Waters floating classroom. Visit ***www.livinglandsandwaters.org***.
- Oct. 2-3—**Indiana Non-Public Education Conference**, "Connecting Visions" at the Indiana Convention Center. For more information, visit *http://www.inpea.org/*.
- Oct. 10—**Free Geography Action Workshop** at Northview Middle School, Washington Township, Indianapolis; demonstration of classroom activities and resources; 4:15pm-6:15pm, includes refreshments. RSVP to Diane Black at *dblack@msdlt.k12.in.us* or 317-259-5421 ext. 804.
- Oct. 13-14—GENI's annual **Fall GeoFest** 2006 at Clifty Falls State Park; 5:30pm Friday until 4:30pm Saturday. Exciting new Friday night trolley tour of historic Madison, Indiana and a full day of geography sessions on Saturday. See page 14 for details!
- Oct. 14—Opening of the **Maps: Tools for Adventure Exhibit** at the Children's Museum of Indianapolis. See page 7.
- Oct. 15—Registration deadline for the 2007 **National Geographic Bee**. See page 15.
- Oct. 17—**Educator Networking Night**, at the Children's Museum of Indianapolis for the new National Geographic "*Maps: Tools for Adventure" Maps Exhibit*. See page 7.
- Oct. 27—**Indiana Council for the Social Studies** annual conference at the Adam's Mark Hotel near the Indianapolis Airport. See page 15 for details.
- Mid-Nov.—One-day **Workshop** to discuss issues surrounding the **New Course**, *Geography and History of the World*. See page 3
- Nov. 12-18—**Geography Action!/Geography Awareness Week 2006**—>"Africa in 3D: Diversity, Demographics, Discovery. Remember that only paid GENI members will receive a GENI GAW Newsletter and resources provided by NG, 2 maps this year! We will also be hosting FREE GA workshops around the state. Check the GENI website for dates and locations. Also visit *www.nationalgeographic.com/geographyaction*.
- Nov. 15—The seventh annual **National GIS Day**. Watch the GENI website for traveling workshops and great GIS resources.
- Dec. 1-2—**GENI's Strategic Planning Board Meeting** on Friday evening and Saturday, at the Indianapolis Holiday Inn Express Northeast. Contact Jill Bowman for attendance information at (317) 842-8039 or *jill.bowman@netzero.net*.

Reources

- Target **Field Trip Grants Program** if offering 800 awards of $1,000 each for K-12 educators and school officials. Applications will be available online beginning in September. Target hopes that teachers can use this grant to continue using the valuable experiential learning gained from field trips to enhance students' classroom studies. *www.target.com/teachers* Seek funding to visit new MAPS exhibit!
- From the folks at America Online (AOL) comes a free, kid-friendly web site, **KOL Expeditions**, designed to give kids, parents, and teachers a platform to make learning fun through interactive missions, video content, and other activities. *www.kolexpeditions.com*
- Win a **Teacher/Student Expedition to South Africa!** You and your students can enter for a chance to join the *National Geographic Kids* 2007 Expedition Team to South Africa! Team members will go on a wildlife safari, explore plant and sea life, and experience local culture and traditions. *www.pfizerch.com/purell/content/everyday_explorer/index.html*
- **Piracy** may seem like a romanticized scourge of the past. In reality, piracy is flourishing from Sumatra to Somalia, and today's pirates are far from the lovable rogues who populate swashbuckling movies like the new *Pirates of the Caribbean: Dead Man's Chest.* Visit (*www.nationalgeographic.com/education/lesson_plans/index.html*) for fun lessons for everyone: *K-2: A Pirate's Life; 3-5: Pirate map; 6-8: Pirate Archaeology; 9-12: Piracy – A Continuing Problem.*
- **The Census in Schools program** promotes the use of Census Bureau information among educators and students by providing them with customized products. Program objectives include: Build statistical and geographic literacy among U.S. students; Increase use of real-world data in the classroom; Increase awareness of U.S. Census Bureau activities and the usefulness of its information to educators and students *http://www.census.gov/dmd/www/teachers.html*
- A resource full of news, features, and advice to help you implement **data-informed instruction** in your schools and districts. *www.eschoolnews.com/resources/reports/Data-informed/index.cfm*

Summer Institute continued from page 1

experience, on an extremely hot afternoon, included the use of GPS (global positioning systems) units on the IUPUI campus during a geo-caching exercise. Participants also utilized compasses during an orienteering exercise at Eagle Creek Park – another very hot afternoon.

Special presentations during the institute focused on "how" to develop an exhibit (whether at the Children's Museum or at school) from the Museum's exhibit developers and a "behind the scenes" look at some of the exhibit's artifacts and a note about building a traveling exhibit that maintains the integrity of the artifacts yet allows viewers to truly experience the materials. The creation of an exhibit - process of generating the ideas, documenting the ideas (both in writing and in graphics), collecting the materials to make the ideas come to life, building portable displays to enhance the learning experience, and presenting the exhibit to visitors – requires lots of time and involves lots of individuals. The process has been extremely interesting to be involved with, and the summer institute was one successful part of the outreach process.

A curriculum guide to supplement the exhibit will be available for school/ education groups planning to visit the *MAPS: Tools for Adventure* exhibit.

GENI extends many thanks to those involved, over the past five years, in the development of the *MAPS* exhibit. The exhibit makes maps and those explorers and researchers who create and use maps come alive for the visitor. See page 7 for more information on the new exhibit and the free Teacher Networking Night being held on October 17th.

Want more information about the new course, *Geography and History of the World*?

The Geography Educators' Network of Indiana (GENI) and the History Educators' Network of Indiana (HENI) are offering a one-day workshop to discuss issues surrounding the new high school course, "Geography and History of the World". Indiana educators currently teaching the course, or planning to teach the course in the future, are invited to attend.

WHEN: mid-November, 2006
WHERE: IUPUI School of Education, ES
TIME: 9:00 a.m. – 4:00 p.m.

As Indiana steps into new curricular territory, social studies educators have expressed the need for professional development and collaboration with colleagues on effectively teaching "Geography and History of the World". The workshop will begin with a brief history as to the development of the course, venture into structured discussion groups, provide brief content and methodology, share possible resources, and provide direction for further professional development regarding the new course. Your participation and input are vital!

The specific date will be determined soon. Please, watch for announcements via ICSS and GENI web sites and newsletters.

If you are interested in participating, please, e-mail the GENI office at *geni@iupui.edu* or call 317.274.8879. HENI and GENI are attempting to support you and your efforts with no financial support from external sources. In the spring, 2007, we hope to offer several one-day workshops, THROUGHOUT THE STATE, addressing specific issues brought forth from the November workshop. Also, we are developing a web portal to provide additional information, resources, ideas, and connections supporting the "Geography and History of the World". We have every confidence in your abilities, as you are the professional classroom educators. As a team, you-GENI-HENI, can make the course that you offer your students the best that it can be!

New NGS Campaign off to Terrific Start

The My Wonderful World Campaign, launched back on May 2nd, has exceeded early expectations. In just under four months, the focal point of the campaign, *www.MyWonderfulWorld.com,* has generated nearly 15,000 subscriptions for the My Wonderful World Newsletter where you get *"everything you need—news about just announced programs, tips for getting your kids excited about exploring the world, links to the latest free resources, information about contests and student competitions, and much more."*

The site also allows viewers to directly contact their lawmakers (at any level) to tell them that they support geography education and urge them to do so as well. To date, over 2, 496 emails have been sent to elected officials.

If you have not already done so, visit MyWonderfulWorld.com to discover how you and your students' parents can help "Give our kids the power of global knowledge."

A quick recap for those unfamiliar with the campaign. A coalition led by National Geographic unveiled a public engagement campaign designed to give students tools to become more informed global citizens. The goal of the five-year, multimedia campaign — My Wonderful World — is to improve the geographic literacy of young people ages 8-17 by motivating parents and educators to expand geographic learning in school, at home and in their communities. Specifically, the campaign aims to:

- Show parents how to help their children learn about the world.
- Increase geographic offerings in schools and the resources available to them.
- Increase the number of students who take geography-related courses and engage in related activities in school.
- Increase the number of community organizations that engage young people in geography-related activities.

The campaign Web site, MyWonderfulWorld.org, provides resources such as suggestions for family activities and ways that parents can work to get more geography into the classroom, links to geography games and online adventures for kids and teens, classroom materials for educators, and ways for young and old to test their global IQs. The site also provides tools for communicating to policymakers and education leaders the importance of geographic literacy.

VolunTourism continued from page 1

help children around the world. Sally Brown, former President and C.E.O. of one of the largest travel clubs in the U.S. (Ambassadair), founded a humanitarian organization that offers volunteer opportunities worldwide. Ambassadors for Children is a not-for-profit, charitable organization that provides meaningful travel opportunities, voluntourism trips and travel packages to help children in need around the world.

Sally Brown is passionate about bettering the lives of children who live, study and play in impoverished communities, while offering volunteers a life-changing experience. Whether you choose a four-day trip or a two-week adventure, you can visit fantastic destinations around the world AND make a difference in the lives of the children there. No specific training is required for AFC trips. However, in addition to distributing needed supplies, as an educator you can provide valuable lessons and leave a lasting imprint on the children's future.

While travel, especially international travel, is not possible for everyone, there are additional opportunities to get involved with Ambassadors for Children. Do you require your students to do a service project? They can collect and assemble donations for regularly needed items (ie—personal hygiene kits, art supplies, school supplies, and miscellaneous items). Help your students connect with children in another country and form a caring relationship to last a lifetime.

For information on how you can get involved with Ambassadors for Children, visit ***www.ambassadorsforchildren.org***. Do not miss out on this opportunity to enhance young people's understanding and awareness of the interdependency and interconnection of the global community.

Previous AFC trip to Jordan

Upcoming 2006-2007 destinations include Morocco, Malawi, New Mexico-Navajo Reservation, Jordan, Mexico (Puerto Vallarta and Cancun), Belize, Guatemala, Kenya, Jamaica, Dominican Republic, India, El Salvador, Costa Rica, Serbia, South Africa, and Peru. Many trips coincide with Fall, Winter and Spring Breaks!

Zebulon Montgomery Pike

By Melissa Martin

Most Americans have heard of Pikes Peak in Colorado Springs, Colorado, made famous from the poem/song *America the Beautiful* by Katherine Lee Bates. But what many do not know is how this famous mountain got its name. 2006 marks the 200th anniversary of Zebulon Montgomery Pike's expedition of the southwest.

Pike was born in 1779 in New Jersey and later followed his father into the military. His father, also Zebulon, was a veteran of the American Revolution. Pike's first military assignment was in the Ohio frontier. He later was befriended by General James Wilkinson, the commanding general of the United States Army. His first assignment came in the form of an expedition of the Upper Mississippi River. He was ordered to explore and to buy sites for future military posts. He left Fort Bellefontaine on August 9, 1805 in a seventy foot keelboat with a group of twenty men. He returned to St. Louis on April 30, 1806 with very little success. He incorrectly identified Cass Lake in Minnesota as the source of the Mississippi and had very little success forming relations with the Indians. However, he did bring back very important geographical information on the area.

In 1803, President Thomas Jefferson doubled the size of the United States of America with the Louisiana Purchase. Lewis and Clark were sent on an expedition to explore the Missouri River and the northern boundary of this new land. Zebulon Pike's assignment was to lead an expedition to map the Arkansas and Red Rivers and southern boundary. This was a highly disputed area between the United States and Spain. Many thought the border of the newly annexed United States was the Rio Grande. However, Spain still claimed the territory as far north as the Arkansas. This expedition was initiated by General Wilkinson as an intelligence operation against Spain. This action was approved by President Jefferson. Wilkinson's real intent was to lead a coup in the west with the assistance of Aaron Burr. The details are not clear of the coup, but the expedition would provide the means for Wilkinson. He launched the Pike expedition without official authorization from President Jefferson or the War Department (although it was approved at a later date).

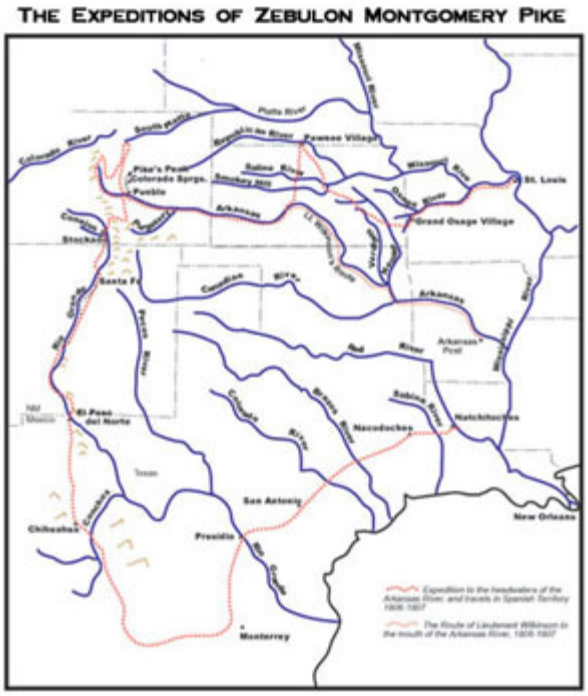
Pike began near St. Louis on July 15, 1806 with 23 men and 51 Osage Indians. Pike was to return the Osage to their villages. They had been held hostage by the Potowatomi. His party then traveled 500 miles up the Missouri and Osage Rivers, journeyed cross country to the Arkansas River and made camp near present day Great Bend, Kansas.

Pike divided his forces at this point. He sent a small group to explore the mouth of the Arkansas and the rest; led by himself, traveled westward on the south side of the river. He was following a trail left by a troop of Spanish Calvary. At this point in the expedition, Pike made a very critical decision to carry on without adequate supplies for the upcoming winter. On November 15, 1806 just west of Las Animas, CO, Pike made this entry into his journal…

"At two o' clock in the afternoon I thought I could distinguish a mountain to our right, which appeared like a small blue cloud; viewed it with the spy glass, and was still more confirmed in my conjecture, yet only communicated it to Dr. Robinson who was in

Pike's Tower located in Willow Creek Park in Lamar, Colorado. Pike and his men camped on or near this site on November 13, 1806.

Photo by Melissa Martin



Map drawn by Hal Jackson

front of me; but in half an hour they appeared in full view before us. When our party arrived on the hill they with one accord gave three cheers to the Mexican Mountains".

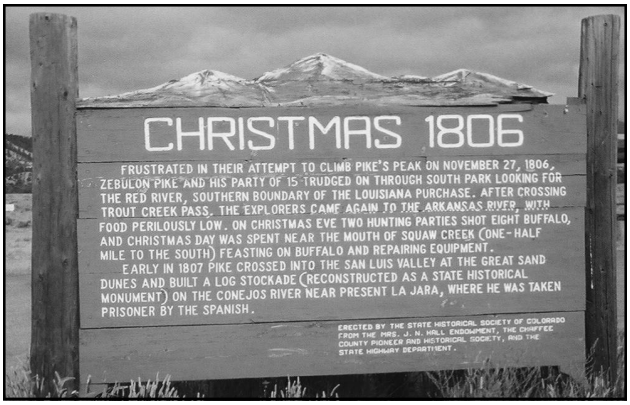
Pike was very intrigued by the "blue cloud", that he sat out to explore the mountain. But due to lack of supplies and winter clothing, he was driven back to base camp. During the climb, he and the others encountered hip-deep snow and 22 degrees weather. Pike stated in his journal, "*I believe that no human being could have ascended to its pinnacle*". Pike never set foot on the mountain that today bears his name.

Pike set off across a mountain pass and came to a river thought to be the Red River. It was however, the Arkansas seventy miles from where they had been two weeks prior. Having gone without food for four days, the weary troops celebrated Christmas at the Big Bend area feasting on buffalo.

The climbing party surveys a distant Pikes Peak in this E. Camron painting.

The group left the valley heading south from Colorado into northern New Mexico. There they were apprehended by Spanish officials and charged with illegal entry into Spanish Territory. All of Pike's maps, notes and papers were confiscated. The Spaniards escorted Pike to Santa Fe and across Texas, releasing them at the Spanish-American border in Louisiana.

Pike returned from the expedition without a hero's welcome and was reprimanded by President Jefferson. But his reports did motivate America to expand its interests into Texas. He is also credited with creating the "Great American Desert" myth by saying of the region in 1810, "*These vast plains of the western hemisphere may become in time equally celebrated as the sandy deserts of Africa…".*



Historical marker located outside of Poncha Springs, Colorado.
Photo by Melissa Martin

Without reward, unsuccessful as an explorer and a spy, and with a shadow cast against his honor, it is to Pike's credit that he continued with heroic effort to serve his country. He was promoted to brigadier general in 1813. During the *War of 1812*, he was leading a successful attack on the British at York when he was fatally wounded by debris from an exploding powder magazine. He died at the age of 34 relatively unknown; with the exception of the mountain that bears his name.

Sources used…

http://zebulonpike.org/
2006 Summer Adventure Guide
Along the Trail with Zebulon M. Pike by Ava Betz and Stew Brown

National Geographic MAPS: Tools for Adventure

A New Exhibit from The Children's Museum of Indianapolis and the National Geographic Society

October 14, 2006 – February 11, 2007

The world's largest children's museum and the world's most recognized map experts have joined forces to develop an extraordinary learning experience: *National Geographic MAPS: Tools for Adventure.* This new international traveling exhibit will premiere at The Children's Museum from October 14, 2006 through February 11, 2007.

Dynamic elements within the exhibit, grouped by land, sea, air and space exploration, will invite visitors to become explorers, chart new territory and plan their own adventures.
National Geographic MAPS will help students navigate their way through ancient mapping techniques and new technologies, like GPS and GIS. The interactive exhibit will enable students to experience historical and contemporary maps and join past and present explorers on their expeditions

Students can use "robots" to explore the hidden shafts and layers of pyramids like one of the world's most well known archeologists, Dr. Zahi Hawass, a National Geographic Explorer-in-Residence. They can also step into a Congo trek tent or try their hand at tracking elephants and establishing a park for them like Dr. J. Michael Fay, a wildlife biologist and National Geographic Explorer-in-Residence. Fay trekked over 1,000 miles through forests in Congo and Gabon, documenting rare and vanishing African wildlife in an effort to establish protected land.

Students can join Lewis and Clark and the Corps of Discovery or trace Amelia Earhart's flight paths across the world on an oversized, interactive wall map. They can sit in a Lockheed Vega cockpit similar to the one Earhart flew, or try using a sextant to find their location. They can head to the Explorations in Space station, where they will learn more about the work of NASA scientist Dr. Nathalie Cabrol, and use geologic and topographical maps to navigate a Mars rover via computer.

From a simple freehand drawing of how to get to a friend's house, to the most complex multicolor depiction of weather conditions, all of us use maps as tools for adventure!

National Geographic MAPS: Tools for Adventure Teacher Networking Night October 17, 2006—4:30-7:30 p.m.

You are invited to a special Teacher Networking Night at The Children's Museum of Indianapolis on Tuesday, October 17, 2006 from 4:30 to 7:30 p.m. to celebrate the opening of a new exhibit – National Geographic MAPS: Tools for Adventure.

Visit the exhibit, enjoy food and fun activities, learn about resources and out-reach organizations for teaching geography and receive free materials for your classroom. Meet present-day adventurers who used new mapping technologies to find and explore the wreck of Blackbeard's flagship, The Queen Anne's Revenge, off the coast of North Carolina. You'll go back to your classroom with treasure!

To register for the National Geographic MAPS Teacher Networking Night, call The Children's Museum at **(317) 334-400** or **(800) 820-6214**. You can also register on-line by visiting the **Teacher** page on the museum Web site at: *www.childrensmuseum.org*.

Geography Action! 2006-07: "Africa in 3-D"

This year, the *Geography Action!* program will focus on Africa. The program will feature the regional and cultural geography of **"*Africa in 3-D: Diversity, Demographics, and Discovery*!"**

Geography Action! themes will focus on the continents for the next several years, the result of which will be a world curriculum. Students are sure to be engaged by the spectacular landscapes, unique wildlife, and rich cultures of Africa, the first continent featured.

"Africa in 3-D" activities and lessons will be adaptable for all subjects, including science. The program launches in September and is geared for participation throughout the 2006-07 school year. The *Geography Action!* Web site will offer dozens of interactive experiences, as well as include ideas for creating your own African festival.

Mark your calendar for Geography Awareness Week—November 12-18, 2006—a great time to highlight Africa in the classroom, school, and community!

GENI will also be offering ***Geography Action! After-School Workshops*** around the state. Watch the GENI website for dates and times! The next Newsletter will focus on the GA! theme, providing literature lists, activities, games, music, foods, and more. Get a list of everything you need to host a "Celebrate Africa" event at your school!

Enter your class in the "*2006 Indiana Geography Action! Poster Contest*"

Have your students put together a poster representing this year's theme and they could win great classroom prizes, including a globe and an ice cream party! Four winners will be chosen, one from each category: K-2, 3-5, 6-8 and High School. Contest details and rules will be posted on the GENI website in mid-September and in the next newsletter.

New Oceans Map from the National Geographic—

From Sea to Shining Sea: Exploring America's Ocean Realms

This beautiful, two-sided map from the National Geographic presents a wealth of knowledge, along with incredible images, about our ocean realms! A sample of the information on the map: "Few of us realize it, but by one definition of what constitutes the United States, more of our nation is under water than on land! Some 4.4 million square miles of ocean floor lies within the Exclusive Economic Zone (EEZ) over which we claim jurisdiction and resources. That's compared to 3.6 million square miles of land. America's ocean realm is a rich mosaic of places, from icy fjords to tropical coral reefs, from sunlit shallows to lightless depths. These marine ecosystems are habitats for seaweeds, snails, octopuses, fishes and whales, and places where people sail, surf, snorkel, fish, and extract oil. They are essential to our well-being. No nation governs a larger or more diverse ocean area." The is map also accompanied by a *Classroom Companion*, with lesson plans, activities, games, interactive features, magazine articles, news articles, photos, and complimentary maps. Visit the National Geographic EdNet site at *www.ngsednet.org/oceans* for a list and links to these great classroom resources. Contact the GENI main office for additional copies of the map!

An Environmental Lesson From "Poppy" by Avi

By: Tammy Underwood, Muncie, Indiana

Classroom sessions/estimated time: Reading the novel, **Poppy** will take approximately 3 weeks if you read 15 minutes daily. Creating models of ecosystems will take 5 class periods. Map activity will take 1 class period.

Grade Level: 5 (but easily adaptable)

Purpose: The purpose of this lesson is to study the concept of an ecosystem and to learn about the physical characteristics typical of ecosystem environments.

National Geography Standards Addressed:
#1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.
#8: The characteristics and spatial distribution of ecosystems on Earth's surface.
#15: How physical systems affect human systems.

Indiana Social Studies Academic Standards Addressed:
5.3.5: Map and describe the characteristics of climate regions of the United States.
5.4.4: Explain that in any particular environment some kinds of plants and animals survive well.

Objectives:
Upon completion of this lesson, students will be able to
1. identify six ecosystems,
2. describe the main differences and similarities between the six ecosystems,
3. explain map essentials,
4. identify the flora and fauna of an ecosystem,
5. identify animals common to each ecosystem,
6. explain the flow of energy and the cycling of matter through an ecosystem, and locate ecosystems throughout the United States.

Materials Required:
- Book: *Poppy* by Avi (ISBN: 0-531-09483-9)
- Six boxes (I use the empty Zerox paper boxes)
- Variety of art materials -- clay, markers, construction paper, toothpicks, etc..
- Copy of map from **Poppy** for each student (map is found before the first page of the book)
- Encyclopedias
- Check your local library for the series: **Exploring Earth's Biomes** (ISBN: 0-805-02830-7)
- Large map of the United States

Procedures:
1. Introduce the novel by passing out a copy of the map of *Dimwood Forest* from **Poppy**. Have students study the map. Ask several questions to check for understanding, thus reviewing map essentials. For example, "If you are standing on Bannock Hill, in which direction would you travel to reach Gray House?"
2. Next, begin reading **Poppy**. On the blackboard or a flip chart, make a list of all the animals and plants mentioned in the first chapter. Explain that each of the six ecosystems students will study will have certain animals and plants.
3. In chapter 2, Lungwort explains that the family will have to move due to a food shortage. Explain and discuss the flow of energy in a food chain. Discuss the connection of the flow of energy in a food chain to the ecosystem and to humans.
4. Continue to read the novel. Explain that students will work cooperatively to create a model of an ecosystem (desert, deciduous forest, taiga, tundra, grassland, and tropical rain forest). Each model will include a map that shows where the ecosystem is located. The map will contain map essentials: title, orientation (compass rose), date, author, legend and scale. Each model will have the plants, animals, climate and landscape that pertain to that ecosystem. In addition to the model, students will explain at least five food chains in their ecosystem.
5. Locate areas of the United States that contain the six ecosystems studied. Indicate those locations (rough boundaries) on a large map of the United States. Discuss any patterns or relationships that the students may observe between the ecosystem locations.

6. Invite other classes to view the models of the ecosystems and the U.S. ecosystem locations map.

Assessment:

- Students will be evaluated on level of quality of completed models of the ecosystems. (A class-generated rubric will indicate levels of achievement.)
- Students will be evaluated by their accurate and complete explanation of the five food chains in their ecosystem.
- Positive group interaction and participation in project development will also be assessed.
- Participation in the United States ecosystem location discussion.

Adaptations/Extensions:

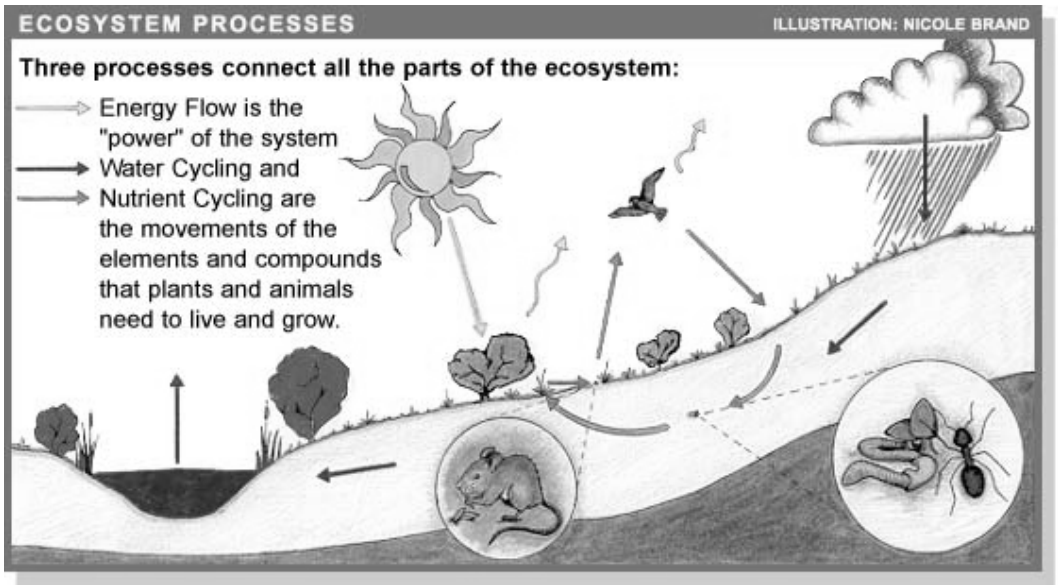
- Go on a field trip to a local forest, grassland, or wetland.
- Make a recipe that comes from each ecosystem -- tropical rain forest punch has pineapple juice, orange juice, and lime sherbet or eat moose tracks ice cream for the taiga.
- Address the question: What are the human aspects of living in each biome, either past or present? What cultural, economic, and other differences occur because of the characteristics of each biome?
- Dissect an owl pellet and discuss the flow of energy from mouse to owl.
- Research the location of the six studied ecosystems around the world.

Resources:

- Avi. ***Poppy***, Orchard Books, 1995. (ISBN: 0-531-09483-9)
- National Geographic World magazines. National Geographic Society.
- Science NetLinks: *www.sciencenetlinks.org*
- Encarta Encyclopedia by Microsoft

Some Basic Tenets of Ecosystem Thinking:

- Every place is an ecosystem.
- Ecosystems include biological (living) and physical (non-living) components.
- Ecosystems have boundaries but are not closed.
- Ecosystems have important components that are invisible to the naked eye, such as nutrients and microbes.
- Things interact inside an ecosystem and between an ecosystem and its surroundings.
- Most interactions among ecosystems and their parts go all ways.
- All budgets must balance - nothing magically appears or disappears.
- Ecosystems provide many "services" of vital benefit to society.
- Understanding how ecosystem services work empowers us to protect and sustain them.
- People affect ecosystem services by altering ecosystem structure and functions



Find Your "Ecohood" (Ecological Neighborhood)

Geo-technology and Environmental Ecology

By: *LouAnn Unger*

Grade level: 9 through 12

Indiana Geography Standards:
GHW – Relate the following geo-spatial technology activity analyzing local ecology issues to the international applications of technology to large-scale ecology issues: 9.3.
WG – The following activities relate to or may be adapted slightly to relate to: 1.3, 1.5, 3.10, 5.9, 6.1 and 6.12.

Overview: Students are familiar with the term *neighborhood* used to describe the people or things that live near them. In this inquiry investigation, students use a variety of investigative tools – including global positioning system (GPS) units – to learn about local ecology. Students will understand that the ecology of localized areas differs from place to place, much like a neighborhood, and they will use global positioning to mark various locations as addresses within their ecological neighborhood or, as it is called in this exercise, their *ecohood*.

Prior knowledge: Older students with a background in basic ecology will understand and describe the abiotic and biotic factors in areas they choose around the school. Younger students will rely on and develop their ability to observe their natural surroundings as they investigate and explore these environments. All students will be introduced to the GPS unit and will become proficient in use of GPS units as they mark locations in their *ecohood*. Later, they will demonstrate proficiency by using GPS units to navigate and locate ecosystems identified for them.

Materials Required:
- Four to five eTrex® personal navigators (one for each group).
- Compass
- Index cards (lined on one side)
- Blackboard
- Outside area to study
- Journal (1 per group)

I. Engage students with a scientific question.

Initial Question: How do ecosystems around the schoolyard vary?

After an introduction, participants in small groups brainstorm ways ecosystems might vary at different locations around the school. They should generate questions about things that could affect ecosystems, such as
1. Type of soil
2. Use of pesticides or herbicides
3. Pollutants from litter or automobile exhaust
4. Foot traffic during the year
5. Drainage patterns
6. Amount of sunlight.

Generating questions while identifying ecosystem:

Students form groups of three or four. Each group is given the following instructions:

Your task is to work with your team to investigate the different environments around the school. Use your knowledge of land use and your observation skills to categorize at least five different areas on or near the school grounds. Your team will be given five index cards, one for each ecosystem. On the unlined side, do your best to describe the location of the ecosystem. On the lined side, describe the features of the location. You can, for instance, consider
- How is this land used during the school year?
- How does the school control plant growth or insect pests?
- What plants and animals do you observe?
- How would you describe the soil?

- Is the land hilly or flat?
- What are the distinguishing features: standing water, rocks, hills?
- ... anything else you want to ask

In addition,

1. Write one statement per card on what sets this area apart from others as an ecosystem,
2. and Write one question about the ecosystem.

Remember to write clearly. Each person is responsible for writing down at least one card. This is a brainstorming process, so do not stop to edit questions. Write down all observations and questions, even those that might be quickly answered.

On returning to class, place the cards on a central table for later use.

II. **Probe what students think they know about locations.**

Initial question: How can you describe a location?

Have students brainstorm ways that they might locate a house, friend, classroom or a tree. Use a flip chart or the blackboard, to record student answers. Ask how they chose to locate their ecosystems. Accept all reasonable answers. Categorize these answers as: uses numbers, uses a nearby object (relative location), uses directional coordinates (north, west, east, south)… Help students realize that locations linked to nearby objects can be unreliable if the nearby object (such as a tree or building) changes.

Demonstrate: Play the radio advertisement for OnStar**.**

Ask: How did the rescuers know where to find the vehicle? This will serve as an introduction to the GPS. Students will understand that GPS is a satellite-based navigation system consisting of a network of satellites orbiting the earth. Locations are identified by latitude and longitude coordinates in degrees, minutes and seconds.

Ask, how can GPS be used to identify locations of any one of the ecosystems in the schoolyard?

Introduce: Provide each group one eTrex® personal navigator. Assign two people in each group to be navigators. Give initial instructions and let students explore use of the probe. Note: students will need to go outside to accomplish this task. Students should then complete the following tasks (record answers in their journal):

Task 1. Each group will be assigned outside waypoint (e.g. flagpole, stop sign, etc.) use the GPS unit to identify its latitude and longitude, to the nearest minute.
Task 2. Each group will be told to go to the flagpole and walk with the probe, northwest to the nearest pine tree. Students will identify the distance to between the flagpole and pine tree. (Perform a similar task appropriate to your place.)
Task 3. Repeat task 2, and check for repeatability.
Task 4. The manual specifies that the accuracy of the GPS unit is <15 meters or 49 feet. Have students mark off that distance as a demonstration.

III. Design the investigation

Students brainstorm to place the index cards into categories. There will be some overlapping of areas, but for the most part, the areas should be different from one another. For example, students might identify areas such as the

1. "Front Yard" of school grounds (northwest corner of property)
2. Grassy islands (throughout the parking lot)
3. Athletic fields (east side of school building)
4. Weedy area behind bleachers (southeast side of property)
5. Outside courtyard (between the library and cafeteria)

Assign each group at random, one ecosystem to investigate. Provide all index cards concerning that ecosystem.
Assign group roles (2 navigators, 1 recorder, 1 in charge of equipment).
Allow each group time to formulate a key question to investigate about their ecosystem. They should also develop a way to characterize the ecosystem based on the organisms present and the nonliving environment.

IV. Collect data. Each group

1. Decide on the ecosystem size and use the GPS unit to mark its area. Record the dimensions in meters and record the coordinates in the group's lab journal.
2. Use the Internet or the GPS unit to mark the school property boundaries.
3. Collect data to answer your question. For example
    a. Study the plants
        i. Estimate the number of different types of plants.
        ii. Collect a sample of leaves of at least 2 plants from the area to be identified in the classroom.
        iii. In classroom, use keys to identify plants.
    b. Study of animals above and below ground (if season permits)
    c. Study of abiotic factors (such as soil, rocks, water).
    d. Develop a food web.
    e. Other

V. Analyze and interpret data

Each group will write a report describing their ecosystem. The report will identify the coordinates of the ecosystem, plot the size of the ecosystem, and describe the abiotic and biotic factors within the ecosystem. It will also summarize the outcome of their investigation.

The report will conclude with a description of how the ecosystem could be improved (for example: more attractive, more useful, better soil, less foot traffic, greater biodiversity). The class will choose one proposal from among the group's suggestions to present to the class.

VI. Summative activities

Each group submits the following
1. A map showing the location of the ecosystem within the school grounds.
2. Field notes.
3. Report.
4. Presentation materials

Each student submits the following
1. A brief summary explaining their role in the project, their ecosystem, and
2. A description of what they would do differently if they had to do this project again.

Each student is quizzed on the use of a GPS unit. (Try for a small grant or invite a local surveyor or other person to help – many have GPS units and are experts in the use and applications of a GPS unit and are willing to be involved with the students.)

VII. Extension and reinforcement activities

1. Each group will be given coordinates from another group's ecosystem. Using the GPS unit, the group will locate the ecosystem and describe it. Their description will be compared to the initial group's description.
2. Develop a plan to enhance one of the ecosystems. What would you do? Estimate the cost? How would you propose this to the school board?
3. Identify additional practical uses for the GPS units.

References

- Arms, Karen. 2004. Environmental Science. Holt, Reinhart and Winston. Austin, TX.
- Garmin eTrix® / eTrex® Camo Personal Navigator® Owner's Manual. 2004. Garmin International, Inc. Olathe, Kansas.
- GM OnStar Overview. On the World Wide Web at http://gmcanada.com/english/maintenance/onstar_overview.html
- National Research Council. 2000. Inquiry and the National Science Education Standards. National Academy Press, Washington, D.C.

GEOFEST 2006

A Standards-Based Workshop
Clifty Falls State Park
Madison, Indiana
October, 13-14, 2006

Come join us for another great annual fall event (Fri. 5:30pm-Sat. 4:30pm). Our host site this year is the wonderful Clifty Falls State Park and the Clifty Inn, providing for a super geography experience. Hot themes this year include the 2006 Geography Awareness Week Theme - *Africa in 3-D: Diversity, Demographics, Discovery, Climate and Mummification;* and *Playdoh Relief Maps*. Back by popular demand is the Saturday morning orienteering experience and afternoon GPS/GeoCaching Activity. Participants will be provided handouts for each session including **detailed listings of the standards** covered by each session. Earn professional development points.

We will kick off the event with something new this year: a historic tour by trolley and session on the geography of downtown Madison, Indiana Friday evening. We will visit beautiful historic sites and then conclude with a wine and cheese hospitality opportunity back at the Inn.

For a registration fee of $50 - GENI members/$65 non-members (includes a 1-year GENI membership), you will be provided with Friday lodging; breakfast, lunch and snacks on Saturday, and great classroom handouts. The fee for spouses/guests is $50. Some rooms are available for Saturday night as well. Bring the family and make a weekend of it. All rooms have two queen beds, a small refrigerator, and a microwave in them. The Saturday lodging fee is the responsibility of the participant. Local teachers can join us for a fee of $20 – GENI members/$35 non-members (includes GENI membership) and be provided everything except lodging. Space is limited so get your registration in early! Visit *www.iupui.edu/~geni* to download a registration form. Complete schedule TBA in late August. Contact the GENI office if you have any questions: geni@iupui.edu 317-274-8879.

Indiana Council for the Social Studies

Invites you to attend the

2006 Annual Conference

Think Globally...Teach Locally!

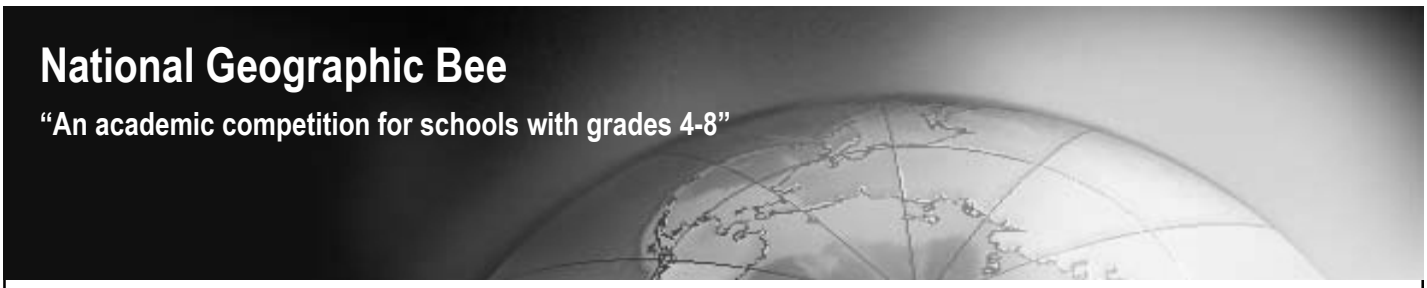
Friday October 27, 2006

The Adam's Mark

(near the Indianapolis Airport)
2544 Executive Drive,
Indianapolis, IN 46241
(317) 248-2481

For more information contact President-elect Julie Patterson
judpatte@indiana.edu

Or check for updates on our new website at http://www.wvec.k12.in.us/icss



Important Dates: October 15, 2006—Registration for the 2007 National Geographic Bee must be received by this date. November 13, 2006 through January 12, 2007—School-level Geographic Bees held. January 31, 2007—Qualifying tests must be received from registered schools by this date. March 30, 2007—State-level Geographic Bees held. May 22-23, 2007—National Geographic Bee, Washington, D.C. Visit *www.nationalgeographic.com/geographybee* for more information.

Geography Educators' Network of Indiana
IUPUI, School of Liberal Arts, CA345
425 University Blvd.
Indianapolis, IN 46202-5140
(317) 274-8879; geni@iupui.edu

http://www.iupui.edu/~geni

New Course Workshop

GeoFest 2006
Clifty Falls State Park
October 13-14

ICSS ANNUAL CONFERENCE OCT. 27

My Wonderful World.org

A National Geographic-led campaign